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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/829,294	LEE ET AL.
	Examiner	Art Unit
	Abbas I. Abdulselam	2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/25/2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7, 9-12, 14, 16-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-12,14 and 16-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/25/2007 has been entered.

2. Claims 1-7, 9-12, 14, 16-22 are pending. Claims 8, 13, 15 and 23 are canceled.

Response to Arguments

3. Applicant's arguments filed on 10/25/2007 with respect to claims 1-6 have been fully considered but they are not persuasive.

4. Applicant's arguments with respect to claims 7, 9, 10-12, 14 and 16-22 have been considered but are moot in view of the new ground(s) of rejection.

With respect to independent claim 1, applicant argues the newly added limitation "the first pixel and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance" are not taught by the cited references, Amundson et al. (USPN 6545291), and Drzaic et al. (USPN 7030412).

However, as shown in the art rejection below, Drzaic teaches a first pixel electrode and a second pixel electrode provided adjacent to the display medium such that the pixel electrode 94

is over the preceding gate line 53 as shown in Fig. 9 (col. 2, lines 35-37, col. 8, line 67 and col. 9, lines 1-2).

Note that as shown in Fig. 2, Drzaic discloses pixel electrodes (34, 40) each of which is separated by some distance as illustrated by the Figure. Drzaic also suggests that a pixel electrode (94) shown in Fig. 9 can be extended over a preceding gate line (53) (col. 8, lines 67 and col. 9, lines 1-2). Hence it is clear from Drzaic' suggestion that each of the pixel electrodes (34, 40) can also be extended over their corresponding select lines (36, 46), because both pixel electrodes (34, 40) are identical and symmetrically configured with respect to their corresponding select lines (36, 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Amundson's pixel electrode (320) of electrophoretic display shown in Fig. 5B with Drzaic's use of two pixel electrodes (which can be extended over their corresponding select lines), because the use of the pixel electrodes helps achieve electrophoretic display with acceptable leakage currents level as taught by Drzaic.

With respect to claim 14, applicant argues that the cited reference Hasegawa et al. (USPN 7173602) does not teach a drain electrode formed on the substrate and a semiconductor layer formed on the source and the drain electrode. Applicant also argues that Hasegawa does not teach a gate line which extends in a first directiona data line which extends in a second direction substantially perpendicular to the first direction

However, as shown in the art rejection below, Hasegawa teaches an electrode layer (403), which is a source-drain electrode formed on an insulating substrate (501)(col. 9, lines 11-14, Fig. 7 (403, 501)), and discloses that the electrode layer (403) and polycrystalline silicon layer (401) (col. 9, lines 9-14, Fig. 7 (401, 403) such that the electrode layer (403), which is a source-drain electrode is formed on an insulating substrate (501) (col. 9, lines 11-14, Fig. 7 (403, 501)). As clearly illustrated on Fig. 8, Hasegawa teaches a gate line (201) and a data lines (203), Fig. 8 (201, 203) col. 10, lines 1-2).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-7, 9-12, 14 and 16-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Independent claims 1, 7, 14 and 20 have new claim limitation which states "the first pixel and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance".

Paragraph [0054) in reference to Fig. 3 states the following:

FIG. 3 shows that the pixel electrodes 191 overlap the gate lines 121 and the data lines 171 to increase aperture ratio and to minimize the uncontrolled area. The above-described thick passivation layer 180 having low dielectric constant can reduce the parasitic capacitance between the pixel electrodes 191 and the gate lines 121 and the data lines 171.

It is unclear how a single data line or a single gate line overlaps two pixel electrodes without the pixel electrodes overlapping with each other. It is further unclear how a single data or gate line incorporates two pixel electrodes without utilizing additional data or gate lines. Pixel electrodes (191) shown in Fig. 3 do not appear to be overlapping on the same single line, instead they overlap on plurality of lines, and hence proper correction is needed.

The following is a quotation of the second paragraph of 35 U.S.C. 112

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7, 9-12, 14, and 16-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1, 7, 14 and 20 have new claim limitation which states "the first pixel and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance".

It is unclear how a single data line or a single gate line overlaps two pixel electrodes without the pixel electrodes overlapping with each other, and proper correction is needed.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (USPN 7173602) in view of Drzaic et al. (USPN 7030412).

Regarding claim 14, Hasegawa et al. (hereinafter = "Hasegawa") teaches an electrophoretic display comprising *(col. 6, lines 55-56, an electronic ink display)*; a substrate *(col. 9, line 14, Fig. 7 (501) an insulating substrate (501))*; and a thin film transistor formed on a surface of the substrate *(col. 9, line 9, a TFT)* this thin film transistor comprising a source electrode and a drain electrode formed on the substrate *(col. 9, lines 11-14, Fig. 7 (403, 501), an electrode layer (403), which is a source-drain electrode formed on an insulating substrate (501))*; a semiconductor layer formed on the source and the drain electrode *(col. 9, lines 9-14, Fig. 7 (401, 403), the electrode layer (403) and polycrystalline silicon layer (401), col. 9, lines 11-14, Fig. 7 (403, 501), an electrode layer (403), which is a source-drain electrode formed on an insulating substrate (501))*; an insulation layer formed on the semiconductor layer *(col. 9, lines 9-10, Fig. 7 (502, 401) a gate insulating*

film (502) and the polycrystalline silicon layer (401)); and a gate electrode formed on the insulation layer *(col. 9, lines 10, Fig. 7 (502, 503), the gate insulating film (502) and gate electrode (503))*, a gate line which extends in a first direction*(col. 10, lines 1-2, Fig. 8 (201) a gate line)*; a data line which extends in a second direction substantially perpendicular to the first direction *(col. 10, lines 1-2, Fig. 8 (203), data line (203))*;

Hasegawa does not teach a first pixel electrode overlapping one of the gate line and the data line; and a second pixel electrode overlapping the one of the gate line and the data line, wherein the first pixel and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance.

Drzaic on the other hand teaches a first pixel electrode and a second pixel electrode provided adjacent to the display medium such that the pixel electrode 94 is over the preceding gate line 53 as shown in Fig. 9 (col. 2, lines 35-37, col. 8, line 67 and col. 9, lines 1-2).

Note that as shown in Fig. 2, Drzaic discloses pixel electrodes (34, 40) each of which is separated by some distance as illustrated by the Figure. Drzaic also suggests that a pixel electrode (94) shown in Fig. 9 can be extended over a preceding gate line (53) (col. 8, lines 67 and col. 9, lines 1-2). Hence it is clear from Drzaic' suggestion that each of the pixel electrodes (34, 40) can also be extended over their corresponding select lines (36, 46),

because both pixel electrodes (34, 40) are identical and symmetrically configured with respect to their corresponding select lines (36, 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Hasegawa's electrophoretic display shown in Fig. 8 with Drzaic's use of two pixel electrodes (which can be extended over their corresponding select lines), because the use of the pixel electrodes helps achieve electrophoretic display with acceptable leakage currents level as taught by Drzaic.

8. Claims 1-2, 5 and 20-21 are rejected under 35 U.S.C. 103(a)) as unpatentable over Amundson et al. (USPN 6545291) in view of Drzaic et al. (USPN 7030412).

Regarding claim 1, Amundson et al. (hereinafter = "Amundson") teaches an electrophoretic display *(col. 4, lines 54-55)*, comprising: a gate line which extends in a first direction *(col. 12, line 27, Fig, 5A (310), select line (310))*; a data line which extends in a second direction in a second direction substantially perpendicular to the first direction, *(col. 10, line 53, Fig. 5A (330), data line (330), as shown in Fig. 5A, the select line (310) is perpendicular to the data line (330))*; a first pixel electrode overlapping the one of gate line and data line *(col. 2, lines 54-58, the pixel electrode and the data line electrode are interdigitated such that the data*

line electrode comprises a data line of the display, and Fig. 5a (330, 320), Fig. 5A clearly shows that a data line (330) and a pixel electrode (320) are configured to be one on top of the other or overlaps), a second pixel electrode overlapping the one of gate line and the data line" (*(col. 2, lines 54-58, Fig. 5a (330, 320) the pixel electrode and the data line electrode are interdigitated such that the data line electrode comprises a data line of the display. Note that as shown in Fig. 5A, the pixel electrode (320) overlaps the data line (330), and a portion of the data line (330) is between the two signal lines (310)).*

Amundson does not specifically teach two pixel electrodes as a "first pixel electrode" and "second pixel electrode" such that the first pixel and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance.

Drzaic on the other hand teaches as best understood teach a first pixel electrode and a second pixel electrode provided adjacent to the display medium such that the pixel electrode 94 is over the preceding gate line 53 as shown in Fig. 9 (col. 2, lines 35-37, col. 8, line 67 and col. 9, lines 1-2).

Note that as shown in Fig. 2, Drzaic discloses pixel electrodes (34, 40) each of which is separated by some distance as illustrated by the Figure. Drzaic also suggests that a pixel electrode (94) shown in Fig. 9 can be extended over a preceding gate line (53) (col. 8, lines 67 and col. 9, lines 1-

2). Hence it is clear from Drzaic' suggestion that each of the pixel electrodes (34, 40) can also be extended over their corresponding select lines (36, 46), because both pixel electrodes (34, 40) are identical and symmetrically configured with respect to their corresponding select lines (36, 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Amundson's pixel electrode (320) of electrophoretic display shown in Fig. 5B with Drzaic's use of two pixel electrodes (which can be extended over their corresponding select lines), because the use of the pixel electrodes helps achieve electrophoretic display with acceptable leakage currents level as taught by Drzaic.

Regarding claim 20, Amundson teaches an electrophoretic display *(col. 4, lines 54-55)*), comprising; a gate line which extends in a first direction *(col. 12, line 27, Fig. 5 (310), select line (310));* a data line which extends in a second direction substantially perpendicular to the first direction *(col. 10, line 53, Fig. 5A (330), data line (330), as shown in Fig. 5A, the select line (310) is perpendicular to the data line (330))*; a first pixel electrode overlapping one of the gate line and data line *(col. 2, lines 54-58, the pixel electrode and the data line electrode are interdigitated such that the data line electrode comprises a data line of the display, and Fig. 5a (330, 320), Fig. 5A clearly shows that a data line (330) and a pixel electrode*

(320) are configured to be one on top of the other or overlaps); a common electrode *(col. 7, lines 43-45, bounding electrodes, col. 8, lines 19-24, multiple pair of electrodes (30, 40) per capsule (20), it is inherent in the electrophoretic display that one of the bounding electrode is a common electrode)*; and a plurality of micro-capsules *(col. 8, lines 39-43, Fig. 1 (20), multiple capsules 20 may be positioned, col. 7, lines 35-38, individual electrophoretic phases may be referred as capsules or microcapsules)*, wherein each of the microcapsules of the plurality of microcapsules comprises electric ink containing a plurality of color pigment particles, *(col. 6, lines 12-19, particles may be encapsulated in the capsules, and include dyed pigments and are dispersed in a suspending fluid, and col. 7, lines 54-55, Fig. 1A (20, 25, 50), a capsule (20) contains at least one particle (50) dispersed in a suspending fluid (25))*, wherein a color of the plurality of color pigment particles is at least one of red, green, blue, cyan, yellow, magenta black and white *(col.8, lines 5-6, particles may be colored any one of a number of colors, and col. 9, lines 31-32, blue particles)*.

Amundson does not teach "a second pixel electrode overlapping the one of gate line and the data line, such that the first pixel and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance".

Drzaic on the other hand as best understood teach a first pixel electrode and a second pixel electrode provided adjacent to the display medium such that the pixel electrode 94 is over the preceding gate line 53 as shown in Fig. 9 (col. 2, lines 35-37, col. 8, line 67 and col. 9, lines 1-2).

Note that as shown in Fig. 2, Drzaic discloses pixel electrodes (34, 40) each of which is separated by some distance as illustrated by the Figure. Drzaic also suggests that a pixel electrode (94) shown in Fig. 9 can be extended over a preceding gate line (53) (col. 8, lines 67 and col. 9, lines 1-2). Hence it is clear from Drzaic' suggestion that each of the pixel electrodes (34, 40) can also be extended over their corresponding select lines (36, 46), because both pixel electrodes (34, 40) are identical and symmetrically configured with respect to their corresponding select lines (36, 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Amundson's pixel electrode (320) of electrophoretic display shown in Fig. 5B with Drzaic's use of two pixel electrodes (which can be extended over their corresponding select lines), because the use of the pixel electrodes helps achieve electrophoretic display with acceptable leakage currents level as taught by Drazaic.

Regarding claims 2 and 21, Amundson teaches a portion of the first pixel electrode overlaps a portion of a width of the data line extending in the second direction/first direction

between adjacent gate lines the data line *(col. 2, lines 54-58, Fig. 5a (330, 320) the pixel electrode and the data line electrode are interdigitated such that the data line electrode comprises a data line of the display. Note that as shown in Fig. 5A, the pixel electrode (320) overlaps the data line (330), and a portion of the data line (330) is between the two signal lines (310)).*

Regarding claim 5, Amundson teaches a thin film transistor comprising a channel *(col. 11, lines 36-37, Fig. 4B, a TFT with a channel);* a source electrode *(col. 11, lines 6-7, Fig. 5A(120), a source electrode (120));* a drain electrode *(col. 11, lines 6-7, Fig. 5A (130), a drain electrode (130));* and wherein the first pixel electrode and the second pixel electrode overlaps the channel of the thin film transistor *(col. 11, lines 45-47, a TFT channel is substantially under the pixel electrode),*

While Amundson teaches electrodes (30, 40) that could be fabricated from opaque materials (col. 8, lines 55-56),

Amundson does not teach the first pixel electrode and the second pixel electrode are made of opaque material.

Drzaic et al. (USPN 7030412) on the other hand teaches a pixel electrode (104) as shown in Fig. 10 that can be transparent or opaque (col. 10, lines 61-62 and Fig. 10 (104)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Amundson's pixel electrode (320) of an electrophoretic display shown in Fig. 5A with Drzaic's opaque characteristics of the pixel electrode (104), because the use of an opaque pixel electrode helps function an electronic display 100 by being boned to a display medium as taught by Drzaic (col. 8, lines 52-56).

9. Claims 7 and 11are rejected under 35 U.S.C. 103(a) as being unpatentable over Drzaic (USPN 6518949) in view of Drzaic et al. (USPN 7030412).

Regarding claim 7, Drzaic (USPN 6518949) teaches an electrophoretic display *(col. 1, line 59-61, col. 1, line 67 and col. 2, lines 1-2 and Fig. (8*)) comprising; a substrate *(Fig. 8(92'), substrate 92')*; a gate line which extends in a first direction *(Fig. 7 (106), row electrode 106)*; a data line which extends in a second direction substantially perpendicular to the first direction *(Fig. 7 (104), a column electrode 104, as shown in Fig. 7, the column electrode 104 is perpendicular to the row electrode 106)*; a thin film transistor comprising a channel *(Fig. 7 (100), transistor (100), Fig. 8 (90'), transistor (90'))*; a gate electrode *(col. 10, lines 9, Fig. 8 (96'), gate electrode (96'))*, a source electrode *(col. 10, lines 7, Fig. 8(98'), source electrode (98'))*; a drain electrode a semiconductor layer *(col. 10, line 8, col. 10, lines 4, Fig. 8(99', 97'), a drain electrode 99'and a semiconductor layer 97')*; and an opaque

layer *(col. 10, line 6, Fig. 8(110) a barrier layer (110), and col. 9, lines 50-51, a barrier layer is opaque)*, wherein the opaque layer formed on the semiconductor layer and disposed over the channel of the thin film transistor*(col. 10, lines 3-4, the barrier layer (110) is positioned over at least a semiconductor layer (97'), and Fig. 8 (96', 110, 97'), Fig. 8 shows the semiconductor layer 97'is between the gate electrode, 96'and the barrier layer (110));* wherein the first pixel electrode and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance (*note that as shown in Fig. 2, Drzaic discloses pixel electrodes (34, 40) each of which are separated by some distance as illustrated by the Figure. Drzaic also suggests that a pixel electrode (94) shown in Fig. 9 can be extended over a preceding gate line (53) (col. 8, lines 67 and col. 9, lines 1-2). Hence it is clear from Drzaic' suggestion that each of the pixel electrodes (34, 40) can also be extended over their corresponding select lines (36, 46), because both pixel electrodes (34, 40) are identical and symmetrically configured with respect to their corresponding select lines (36, 46).*

While, Drzaic (USPN 6518949) teaches providing a plurality of pixel electrodes adjacent the second surface of the display media (col. 2, lines 17-20),

Drzaic (USPN 6518949) does not specifically teach a first pixel electrode overlapping one of the gate line and the data line; and a second pixel electrode overlapping the one of the gate line and the data line, wherein the first pixel and the second pixel electrode overlap a same gate line or data line and are separated by a predetermined distance.

Drzaic et al. (USPN 7030412) on the other hand as best understood teach a first pixel electrode and a second pixel electrode provided adjacent to the display medium such that the pixel electrode 94 is over the preceding gate line 53 as shown in Fig. 9 (col. 2, lines 35-37, col. 8, line 67 and col. 9, lines 1-2).

Note that as shown in Fig. 2, Drzaic (7030412) discloses pixel electrodes (34, 40) each of which is separated by some distance as illustrated by the Figure. Drzaic also suggests that a pixel electrode (94) shown in Fig. 9 can be extended over a preceding gate line (53) (col. 8, lines 67 and col. 9, lines 1-2). Hence it is clear from Drzaic' suggestion that each of the pixel electrodes (34, 40) can also be extended over their corresponding select lines (36, 46), because both pixel electrodes (34, 40) are identical and symmetrically configured with respect to their corresponding select lines (36, 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Drzaic's (USPN 6518949)

electronic display shown in Fig. 7 with Drzaic's (USPN 7030412) use of two pixel electrodes (which can be extended over their corresponding select lines), because the use of the pixel electrodes helps achieve electrophoretic display with acceptable leakage currents level as taught by Drazaic.

Regarding claim 11, Drzaic's (USPN 6518949) teaches wherein the first pixel electrode is made of opaque material *(col. 2, lines 38-41, a substrate that can be opaque, and col. 8, lines 15-17, a substrate that can be patterned to serve as the pixel electrode)*, and wherein the first pixel electrode and the second overlap the channel of the thin film transistor *(col. 4, lines 23-25, Fig. 1a (20) the transistors 20 are located underneath the pixel electrodes (18))*.

10. Claims 3, 6 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amundson et al. (USPN 6545291) in view of Drzaic et al. (USPN 7030412) further in view of Yamamoto et al. (USPN 6563260).

Regarding claims 3, 6 and 22, while Amundson as modified by Drzaic teaches an insulating layer is/interposed/formed between the data line and one of the first pixel electrode and the second pixel electrode*(col. 11, lines 17-20, an insulating layer (170)*

separating a drain electrode (130) from the pixel electrode (320), and col. 10, lines 52-53, Fig. 3 (130, 330), the drain electrode (130) of TFT is connected to a data line 330),

Amundson modified by Drzaic does not teach the insulating layer having a dielectric constant lower than 4, with the insulating layer being made of a-Si:C:O or a-Si:O:F.

Yamamoto et al. (USPN 6563260) on the other hand teach a dielectric constant of an insulating layer, which could be formed of silicone oxide containing fluorine, being equal or less than 4 as plotted in Fig. 3 (col. 13, lines 59-64 and col. 13, lines 48-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Amundson's (as modified by Drzaic) insulating layer (170) of an electrophoretic display shown in Fig. 5B with Yamamoto's insulating layer (made of silicone oxide containing fluorine) having less than 4 dielectric constant, because the use of such insulation layer with a dielectric constant of less than 4 helps manufacture a field emission display whose emitter layer is formed by electrophoresis as taught by Yamamoto (col. 9, lines 9-10, col. 9, lines 16-18 and col. 13, lines 59-60).

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amundson et al. (USPN 6545291) in view of Drzaic et al. (USPN 7030412) further view of Izumi et al. (USPN 7148867).

Regarding claim 4, *while Amundson (as modified by Drzaic) teaches various materials may be used to create electrophoretic displays, and cites as exemplary particles including titania, which may be coated in one or two layers in a metal oxide (col. 6, lines 52-54 and col. 6, lines 61-63),*

Amundson as modified by Drzaic does not teach "the data line is made of a metal selected from a group consisting of Mo, Mo alloy, Cr, Ta and Ti".

Izumi et al. (USPN 7148867) on the other hand teaches source lines (25) may be formed by patterning a metal film of Ta, or Mo as shown in Fig. 1B (col. 8, lines 10-13).

Note that even though Amundson teaches electrophoretic display and Izumi teaches liquid crystal display, the functionality of Amundson's data line (330) and Izmui's source line (25) is the same for both types of displays.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Amundson's data line (330) of an electrophoretic display shown in Fig. 5A (as modified by Drzaic) with Izumi's Tantalum (Ta)-patterned metal film, because the use of

Tantalum (Ta)-patterned metal film with respect to source line (25) helps constitute an addressing substrate (100B) of display device (100) as taught by Izumi (col. 7, lines 11-13, col. 7, lines 60-61 and col. 8, lines 10-13).

12. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable Drzaic (USPN 6518949) in view of Drzaic et al. (USPN 7030412) and further in view of Yamamoto et al. (USPN 6563260).

Regarding claims 9 and 12, while Drzaic (USPN 6518949) as modified by of Drzaic et al. (USPN 7030412) teaches an insulating layer formed between the data line and one of the first pixel electrode and the second pixel electrode *(col. 4, lines 61-65, Fig. 1 C (18', 21, 15'), a pixel electrode (18') and a column electrode 15' and insulator (21) are configured)*,

Drzaic does not teach the insulating layer having a dielectric constant smaller than 4 with the insulating layer being made of a-Si:C:O or a-Si:O:F.

Yamamoto et al. (USPN 6563260) on the other hand teach a dielectric constant of an insulating layer, which could be formed of silicone oxide containing fluorine, being equal or less than 4 as plotted in Fig. 3 (col. 13, lines 59-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Drzaic's (USPN 6518949) *(as modified by* Drzaic et al. (USPN 7030412)*) insulator (21) of an electronic display shown in Fig. 1c with Yamamoto's insulating layer (made of silicone xide containing fluorine) having less than 4 dielectric constant, because the use of such insulation layer with a dielectric constant of less than 4 helps manufacture a field emission display whose emitter layer is formed by electrophoresis as taught by Yamamoto (col. 9, lines 9-10, col. 9, lines 17-19 and col. 13, lines 59-60).*

13. Claims 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Drzaic (USPN 6518949) in view of Drzaic et al. (USPN 7030412) and further in view of Izumi et al. (USPN 7148867).

Regarding claim 10, *while* Drzaic (USPN 6518949) *as modified by* of Drzaic et al. (USPN 7030412) *teaches formation of column electrodes through conductive coatings, which may be Indium, Tin Oxide (ITO) or some other suitable conductive material (col. 11, lines 10-13, col. 11, lines 19-20),*

Drzaic (USPN 6518949) *as modified by* of Drzaic et al. (USPN 7030412) does not specifically teach "the data line is made of metal selected from a group consisting of Mo, Mo alloy, Cr, Ta and Ti".

Izumi et al. (USPN 7148867) on the other hand teaches source lines (25) that may be formed by patterning a metal film of Ta, or Mo as shown in Fig. 1B (col. 8, lines 10-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Drzaic' s (USPN 6518949) *(as modified by* Drzaic et al. (USPN 730412)*) column electrode (104) of an electronic display shown in Fig. 7 with Izumi's use of Tantalum (Ta)-patterned metal film for source lines, because the use of Tantalum (Ta)-patterned metal film with respect to source line (25) helps constitute an addressing substrate (100B) of a display device (100) as taught by Izumi.*

14. Claim 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (USPN 7173602) in view of Drzaic et al. (USPN 7030412).
and further in view of Yamamoto et al. (USPN 6563260).

Regarding claims 16 and 19, While Hasegawa teaches an insulating layer is formed between the data line and one of the first pixel electrode and the second pixel electrode, *(col. 9, lines 10-11, col. 9, lines 15-16, col. 10, lines 5-6, Fig. 7 (403, 502, 504, 405), an electrode layer (403), interlayer insulating film (504) & gate insulating film (502), and pixel electrode (405)),*

Hasegawa as modified by Drzaic et al. (USPN 7030412) does not teach the insulating layer has a dielectric constant smaller than 4.

Yamamoto et al. (USPN 6563260) on the other hand teach a dielectric constant of an insulating layer, which could be formed of silicone oxide containing fluorine, being equal or less than 4 as plotted in Fig. 3 (col. 13, lines 59-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Hasegawa's (as modified by Drzaic et al. (USPN 7030412)) *insulating films (502, 504) of an electrophoretic display shown in Fig. 7 with Yamamoto's insulating layer (made of silicone oxide containing fluorine) having less than 4 dielectric constant, because the use of such insulation layer with a dielectric constant of less than 4 helps manufacture a field emission display whose emitter layer is formed by electrophoresis as taught by Yamamoto (col. 9, lines 9-10, col. 9, lines 17-19 and col. 13, lines 59-60).*

15. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (USPN 7173602) in view of Drzaic et al. (USPN 7030412) and further in view of Izumi et al (USPN 7148867).

Regarding claim 17, *while Hasegawa teaches electrode layers including a layer of titanium (col. 3, lines 53-55),*

Hasegawa as modified by Drzaic et al. (USPN 7030412) does not specifically teach "the data line is made of a metal selected from a group consisting of Mo, Mo alloy, Cr, Ta and Ti".

Izumi et al. (USPN 7148867) on the other hand teaches source lines (25) may be formed by patterning a metal film of Ta, or Mo as shown in Fig. 1B (col. 8, lines 10-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Hasegawa's (as modified by Drzaic et al. (USPN 7030412)*) data line (203) of an electrophoretic display shown in Fig. 8 with Izumi's Tantalum (Ta)-patterned metal film, because the use of Tantalum (Ta)-patterned metal film with respect to source line (25) helps constitute an addressing substrate (100B) of display device (100) as taught by Izumi (col. 7, lines 11-13, col. 7, lines 60-61 and col. 8, lines 10-13).*

16. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (USPN 7173602) in view of Drzaic et al. (USPN 7030412) and further in view of Hirota (USPN 7098980).

Regarding claim 18, Hasegawa as modified by Drzaic et al. (USPN 7030412) does not teach " the inclination angle of the gate line or the data line relative to the surface of the substrate ranges between about 20 degrees to about 80 degrees".

Hirota (USPN 7098980) on the other hand teaches as a scanning line (1), pixel electrodes 5 and a common electrode 6 are so configured as to be bent relative to the alignment direction of N-type liquid crystal. Hirota further teaches that the bent angle 10 can be selected to be an angle with the best display performance as long as the angle is within the range from 60 degrees to 120 degrees except 90 degrees (col. 5, lines 28-34, Fig. 5 (1, 5, 6)).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Hasegawa's (as modified by Drzaic et al. (USPN 7030412)*) gate lines (201) of a display shown in Fig. 8 with Hirota's bendable electrode having a range of bending angle (60-120 degrees, (90) excepted), which includes a range of 60-80 degrees, because the use of bendable electrode or line makes it possible to achieve a large screen, wide visual angle display with high yield and low cost as taught by Hirota (col. 5, lines 65-67).*

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abbas I. Abdulselam whose telephone number is 571-272-7685.

The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Abbas Abdulselam

Examiner

Art Unit 2629

November 19, 2007

Abbas Abdulselam